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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,128	12/31/2003	Niniane Wang	24207-10093	9784

62296 7590 04/01/2008

GOOGLE / FENWICK
SILICON VALLEY CENTER
801 CALIFORNIA ST.
MOUNTAIN VIEW, CA 94041

EXAMINER	
SCIACCA, SCOTT M	
ART UNIT	PAPER NUMBER
2146	
MAIL DATE	DELIVERY MODE
04/01/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/750,128	WANG ET AL.	
	Examiner	Art Unit	
	Scott M. Sciacca	2146	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12,15-27 and 30-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12, 15-27 and 30-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This office action is responsive to communications filed on January 18, 2008. Claims 13-14 and 28-29 have been cancelled. New claims 33-41 have been added. Claims 1-12, 15-27 and 30-41 are pending in the application.

Claim Rejections - 35 USC § 102

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-15, 17-30, 32-39 and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by Hasink et al. (US 2005/0149932). The § 102(e) date of US 2005/0149932 is the earliest U.S. filing date for which a benefit is properly sought via §§ 119(e) (See MPEP 706.02). US 2005/0149932 is given the benefit of the filing date of provisional application no. 60/528,787 to which it properly seeks benefit.

Regarding Claim 1, Hasink teaches a method comprising:

receiving, by an application executed by an operating system, an operating parameter of a client device (*"Embodiments of the present invention can be used with numerous different operating systems"* – See [0020]; *"an operating system 118, running a foreground process 120 and a background process 122 (such as an index process)"* – See [0051]; *"a background process running at idle priority uses performance counters, optionally including one or more of the counters discussed above, and/or other*

mechanisms to determine the immediate load on a resource, such as a magnetic or optical mass storage device, it wishes to use" – See [0024]; The performance counters mentioned in [0024] are exemplified in Table 1. The background process (application) receives one or more of these performance counters (operating parameters));

changing a value representing a performance measure of the client device assigned to a usage variable based at least in part on the operating parameter of the client device (*"By way of further example, Windows Server 2003 provides the performance counters described in Table 1"* – See [0023]; "*The background process checks the value of this counter before and after an interval, such as the 10 millisecond wait interval described above. If the value has changed*" – See [0037]; The values assigned to each of the plural performance counters change so that current statistics pertaining to each of the counters are accurately reflected); and

correlating by the application a resource usage level of the application with the usage variable, the correlating comprising the application modifying its own execution based at least in part on the change to the value assigned to the usage variable (*"The PhysicalDisk performance object includes counters that monitor hard or fixed disk drives"* – See Table 1; *"If the value has changed, the background process uses this as an indication that another process has used the disk in the interim and is possibly still using the disk, and so backs off and waits for an additional period or periods of time"* – See [0037]).

Regarding Claims 2 and 18, Hasink teaches correlating by the application the resource usage level of the application with the usage variable comprising the application suspending one or more operations when the value assigned to the usage variable exceeds a threshold (*"When the counter value is non-zero, or greater than a designated threshold, the background process waits a designated amount of time, such as 10 milliseconds, before checking again"* – See [0031]).

Regarding Claims 3 and 19, Hasink teaches correlating by the application the resource usage level of the application with the usage variable comprising the application performing an activity affecting a usage variable proximate to a time that the value assigned to the usage variable indicates an existing activity (*"The background process then waits a given amount of time, such as, by way of example, 10 milliseconds, and checks for pending disk or mass storage I/O by checking the "current disk queue length" counter, or other appropriate performance indicator"* – See [0031]; *"When the counter value is non-zero, or greater than a designated threshold, the background process waits a designated amount of time, such as 10 milliseconds, before checking again"* – See [0031]; The background process (application) will wait a designated amount of time to access a resource (i.e., hard disk) if the resource is already being accessed by another application, before trying to access the resource again).

Regarding Claims 4 and 20, Hasink teaches correlating by the application the resource usage level of the application with the usage variable comprising the application adjusting a rate of operation based at least in part on the value assigned to the usage variable (*"The background process can then determine when idle cycles are being allocated to the background process because another process, such as a foreground process, is waiting for an operation on that same resource to complete. In such cases, the background process optionally refrains from imposing an additional load on the resource, so that the other process can run without delay"* – See [0024]).

Regarding Claims 5 and 21, Hasink teaches correlating by an application the resource usage level of the application with the usage variable comprising the application adjusting a sequence of operations based at least in part on the value assigned to the usage variable (*"An embodiment optionally utilizes a background process which performs indexing of the contents of a user's hard disk without impacting system performance under Windows-NT based operating systems to an extent that would be readily noticeable by a user. The indexing process performs many disk I/O operations when indexing the contents of the user's hard disk to allow the user to rapidly find files which contain certain words, phrases, or strings"* – See [0025]; *"In addition, the index engine can refrain from indexing until it determines that the mass storage device, which stores the data or files to be indexed, is not being utilized by a higher priority or foreground process"* – See [0027]; The sequence of indexing a client device's hard disk is adjusted based on whether or not other higher priority processes are simultaneously

trying to access the hard disk as indicated by the current value of one or more of the performance counters shown in Table 1).

Regarding Claims 6 and 22, Hasink teaches correlating by the application the resource usage level of the application with the usage variable comprising the application adjusting an active feature based at least in part on the value assigned to the usage variable (*"An embodiment optionally utilizes a background process which performs indexing of the contents of a user's hard disk without impacting system performance under Windows-NT based operating systems to an extent that would be readily noticeable by a user. The indexing process performs many disk I/O operations when indexing the contents of the user's hard disk to allow the user to rapidly find files which contain certain words, phrases, or strings"* – See [0025]; *"In addition, the index engine can refrain from indexing until it determines that the mass storage device, which stores the data or files to be indexed, is not being utilized by a higher priority or foreground process"* – See [0027]; The active feature of the background process (application) which is responsible for indexing a client device's hard disk is adjusted when the application refrains from attempting to access the hard drive when other higher priority processes are simultaneously trying to access the hard disk).

Regarding Claims 7 and 23, Hasink teaches the client device (Computer 102 – See Fig. 1) comprising a client processor (CPU 104 – See Fig. 1) and a client memory storage device (Memory 116 – See Fig. 1).

Regarding Claims 8 and 32, Hasink teaches receiving the operating parameter comprising monitoring the operating parameter (*"the background process checks a performance counter, such as the counter named "\\PhysicalDisk\Current Disk Queue Length" for the specific disk drive instance it wishes to read from or write to"* – See [0029]).

Regarding Claims 9 and 24, Hasink teaches monitoring a period of inactivity of the client device (*"After the second predetermined time period has elapsed, a determination is made as to whether the computer resource is idle"* – See Abstract).

Regarding Claims 10 and 25, Hasink teaches receiving the operating parameter comprising receiving the operating parameter during an initial load of the client processor (*"Embodiments of the present invention determine when a computer and/or resource therein is idle. The determination can take into account the processor or central processing unit (CPU) load"* – See [0018]).

Regarding Claims 11 and 26, Hasink teaches receiving the operating parameter comprising receiving the operating parameter during a predetermined time interval (*"The background process checks the value of this counter before and after an interval, such as the 10 millisecond wait interval described above"* – See [0037]).

Regarding Claims 12 and 27, Hasink teaches the operating parameter comprising a client processor load (*"Embodiments of the present invention determine when a computer and/or resource therein is idle. The determination can take into account the processor or central processing unit (CPU) load"* – See [0018]).

Regarding Claims 15 and 30, Hasink teaches the method of Claim 7 further comprising writing to a computer readable medium of the client memory storage device (*"while running, the indexing process is constantly reading from and writing to the user's hard disk"* – See [0009]).

Regarding Claim 17, Hasink teaches a computer readable storage medium comprising instructions (*"FIG. 1 depicts a computer system 100, including a computer 102, an operating system 118, running a foreground process 120 and a background process 122 (such as an index process) in memory 116, which can be random access memory (RAM), coupled to a CPU (central processing unit) 104 via a memory bus 114, a disk controller 106 coupled to the CPU 104 via peripheral bus 112, one or more mass storage devices 108, including one or more of magnetic hard disk drives, optical drives, solid state non-volatile memory, or the like"* – See [0051]), that, when executed, cause an application to perform the steps of:

receiving, by an application executed by an operating system, an operating parameter of a client device (*"Embodiments of the present invention can be used with numerous different operating systems"* – See [0020]; *"an operating system 118, running*

a foreground process 120 and a background process 122 (such as an index process)" – See [0051]; *"a background process running at idle priority uses performance counters, optionally including one or more of the counters discussed above, and/or other mechanisms to determine the immediate load on a resource, such as a magnetic or optical mass storage device, it wishes to use"* – See [0024]; The performance counters mentioned in [0024] are exemplified in Table 1. The background process (application) receives one or more of these performance counters (operating parameters));

changing a value representing a performance measure of the client device assigned to a usage variable based at least in part on the operating parameter of the client device (*"By way of further example, Windows Server 2003 provides the performance counters described in Table 1"* – See [0023]; "*The background process checks the value of this counter before and after an interval, such as the 10 millisecond wait interval described above. If the value has changed*" – See [0037]; The values assigned to each of the plural performance counters change so that current statistics pertaining to each of the counters are accurately reflected); and

correlating by the application a resource usage level of the application with the usage variable, the correlating comprising the application modifying its own execution based at least in part on the change to the value assigned to the usage variable (*"The PhysicalDisk performance object includes counters that monitor hard or fixed disk drives"* – See Table 1; *"If the value has changed, the background process uses this as an indication that another process has used the disk in the interim and is possibly still*

using the disk, and so backs off and waits for an additional period or periods of time" – See [0037]).

Regarding Claim 33, Hasink teaches the usage variable being a quantitative performance measure of the client device (Table 1 shows the various counters that may be monitored. Note that the counters shown in Table 1 are quantitative performance measurements, such as "% idle time" or "Disk Bytes/sec").

Regarding Claim 34, Hasink teaches the usage variable being a qualitative performance measure of the client device (*"the background process checks a performance counter, such as the counter named "\\PhysicalDisk\Current Disk Queue Length" for the specific disk drive instance it wishes to read from or write to"* – See [0029]; *"a check of the "current disk queue length" performance counter may not be, on its own, adequate or sufficient to allow a background process to determine whether or not another process is using the disk drive, because a queued operation might be on behalf the background process itself"* – See [0030]; One performance counter shown in Table 1 is "Current Disk Queue Length". While this value is a number, it does not directly and numerically indicate a performance measure).

Regarding Claim 35, Hasink teaches the application modifying its own execution comprising the application throttling back its usage of the client device (*"The background process can then determine when idle cycles are being allocated to the*

background process because another process, such as a foreground process, is waiting for an operation on that same resource to complete. In such cases, the background process optionally refrains from imposing an additional load on the resource, so that the other process can run without delay" – See [0024]).

Regarding Claim 36, Hasink teaches the application dynamically modifying its own execution based on dynamic changes to the value assigned to the usage variable (*"If the value has changed, the background process uses this as an indication that another process has used the disk in the interim and is possibly still using the disk, and so backs off and waits for an additional period or periods of time, such as additional 10 millisecond intervals, until the counter value stops changing"* – See [0037]).

Regarding Claim 37, Hasink teaches the application modifying its own execution comprising the application pausing between execution of resource-intensive calculations (*"at state 316 the background process waits a designated period of time, such as 10 msec. At state 318, a determination is then made as to whether the disk is in use"* – See [0054]).

Regarding Claim 38, Hasink teaches a resource used by the application being memory (Memory 116 – See Fig. 1) and wherein the application modifying its own execution comprises the application dynamically scaling back its memory usage based on dynamic changes to the value assigned to the usage variable (The example given

above deals with the background process (application) modifying its own execution with regard to accessing one or more hard disks. Hard disks are a type of memory and the usage of the hard disk by the application includes performing "seeks" for data on the hard disk during the indexing procedure (also mentioned above)).

Regarding Claim 39, Hasink teaches a resource used by the application being network bandwidth (*"Similarly, the above techniques can be applied to a shared network with limited bandwidth"* – See [0050]) and wherein the application modifying its own execution comprises the application throttling-back usage of network bandwidth based on dynamic changes to the value assigned to the usage variable (*"there may be multiple processes trying to access the Internet, and use of the foregoing techniques avoid having a background process slow down a transfer being made by a foreground process"* – See [0050]).

Regarding Claim 41, Hasink teaches a plurality of usage variables (See Table 1) and wherein the correlating comprises the application modifying its own execution based at least in part on changes to values assigned to the plurality of usage variables (*"In an example embodiment, a background process running at idle priority uses performance counters, optionally including one or more of the counters discussed above, and/or other mechanisms to determine the immediate load on a resource, such as a magnetic or optical mass storage device, it wishes to use"* – See [0024]).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 16 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasink et al. (US 2005/0149932) in view of Jackson et al. (US 2002/0152305).

Regarding Claims 16 and 31, Hasink does not explicitly teach the operating parameter comprising a first parameter and a second parameter, wherein the first parameter comprises a speed of the client processor and the second parameter comprises a capacity of the client memory storage device.

However, Jackson does teach the operating parameter comprising a first parameter and a second parameter, the first parameter comprising a speed of the client processor and the second parameter comprising a capacity of the client memory storage device (*"specific examples of information system characteristics that may be so configured for a content delivery system include, but are not limited to, storage characteristics (e.g., storage capacity, mirroring, bandwidth attach rate, protocol, etc.); compute characteristics (e.g., CPU speed, management responsibility, application processing capability, etc.)"* – See [0294], lines 18-24).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include processor speed and storage capacity as operating

parameters. Motivation for doing so would be to indicate if a system's configuration meets objectives such as anticipated capacity or anticipated throughput (i.e., storage capacity or computing capacity). See [0294], lines 5-13.

4. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasink et al. (US 2005/0149932) in view of Sen (US 2004/0261081).

Regarding Claim 40, Hasink teaches a plurality of usage variables (See Table 1) which represent usage levels of a resource, each having a value which indicates the current value of the usage variable. Hasink does not explicitly teach modifying execution of the application to use a level of resources specified in a table.

Sen discloses a table that accounts for resource usages by an application (*"The tags can then be stored in a table 216, such as a hash table, to account for kernel resource usages"* – See [0029]; See also Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to store usage variable values (such as the variables taught by Hasink) in a column and resource usage levels corresponding to the usage variable values in another column and to modify execution of the application accordingly. Hasink takes an approach that involves dynamically determining a level of resources that should be used by an application as shown in Fig. 3. However, storing values in a table provides the advantage of being able to simply look up a resource usage level and

modify the application's execution accordingly as opposed to the processing time it would take to dynamically calculate a resource usage level for the application.

Response to Arguments

5. Applicant's arguments with respect to Claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott M. Sciacca whose telephone number is (571) 270-

1919. The examiner can normally be reached on Monday thru Friday, 7:30 A.M. - 5:00 P.M. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeff Pwu can be reached on (571) 272-6798. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Scott M. Sciacca/
Examiner, Art Unit 2146

/Jeffrey Pwu/
Supervisory Patent Examiner, Art Unit 2146